A RECOMMENDED TRAINING PROGRAM FOR FIRE DEPARTMENT RESPONSE TO TERRORIST ATTACKS

STATEGIC MANAGEMENT OF CHANGE

BY: James Asche
Half Moon Bay Fire Protection District
Half Moon Bay, California

An applied research project submitted to the National Fire Academy
as part of the Executive Fire Officer Program

May 2002

Appendices B through D Not Included. Please visit the Learning Resource Center on the Web at http://www.lrc.dhs.gov/ to learn how to obtain this report in its entirety through Interlibrary Loan.

ABSTRACT

Following the terrorist attacks of September 11, 2001, it became apparent that the fire service needed to be better prepared to respond to terror attacks. The County of San Mateo is located on the California coast, just south of San Francisco. Besides being immediately adjacent to a large metropolitan area, the county itself offers many prime targets to terrorists, including the San Francisco International Airport. The fire service in San Mateo County is comprised of 18 fire agencies which protect 20 cities and a large unincorporated area.

The problem this paper addressed was the identification of the training necessary for fire departments to meet the new challenge of possible terrorist attacks including weapons of mass destruction (WMD), those involving chemical, biological, and nuclear/radiological weapons. The purpose of this research was to develop a training curriculum for terrorist/WMD incidents for the fire service in San Mateo County. This curriculum was to be included in a new section of the *San Mateo County Emergency Plan*, referred to as the "Terrorism Annex".

This project utilized action research methodology and answered the following research questions:

1. What are the most likely types of terrorist attacks that may take place?
2. What training is currently in place to meet an anticipated terrorist attack?
3. What additional special training should be provided to firefighters?
4. What training is necessary at the regional level?

The procedures followed for this project included a review of current literature applicable to the research questions. Many recent articles on the subject matter were available addressing the terrorist threat to the nation and suggested training areas. In addition to the literature review, a questionnaire was distributed to fire department training officers representing 14 fire agencies

in San Mateo and Santa Clara Counties. The questionnaire was used to determine the training currently being provided by fire departments to address the terrorism threat and the departments' willingness to provide additional related training. Finally, interviews were conducted with four San Mateo County government officials representing the Sheriff's Office, the Environmental Health Department, the Emergency Medical Services Agency, and the Office of Emergency Services. Also interviewed was an instructor for an emergency medical services training program. The officials were asked a series of questions on subject matter related to the research questions.

The results of the research indicated that a terrorist attack using chemical, biological, or nuclear/radiological weapons was possible. However, the use of conventional explosives or common hazardous materials and gases was more likely. It also revealed that much of the regular training conducted by fire agencies was directly applicable when responding to acts of terrorism. This included technical rescue training, hazardous materials courses, emergency medical training, and incident command training. Additional training in specific subject areas, such as chemical and biological weapons and their effects, was also recommended.

The primary recommendation made was to include the training curriculum, in the form of a matrix, in the San Mateo County Emergency Plan. The matrix contains a number of new courses to deal with specific topics, but where possible this new information was included as modules in existing courses. Annual training in a number of subject areas was also recommended. A draft of the training curriculum will be presented to both the county training officers' association and fire chiefs' association for review and possible adoption as a county policy.

TABLE OF CONTENTS

INTRODUCTION

Following the terrorist attacks of September 11, 2001, it became obvious that fire departments are the first responders to these devastating incidents. Firefighters are now on the front lines in a new type of war. Terrorist attacks can occur in any community and may take a variety of forms. A terrorist event could be as simple as a small conventional bomb, or it could be as extravagant as a release of chemical, biological, or nuclear agents.

San Mateo County, California, is a coastal county directly south of San Francisco, occupying most of the San Francisco Peninsula. Fire protection is provided to this area by 18 fire protection agencies protecting 20 cities and a large unincorporated area. The entire county population is under one million and only one city has a population of over 100,000 people. Although none of the cities are large, the county's proximity to the City of San Francisco and the location of many major facilities in the county provide a number of prime targets for terrorists. One example being the San Francisco International Airport located well within San Mateo County.

Compounding the challenge of dealing with a terrorist attack is the small size of most of the fire protection agencies in the county. The largest fire department in the county has only five fire stations with 20 personnel on duty each day. Any major incident in the county will require a coordinated response of most of the county's fire agencies. And while we do have an excellent countywide automatic aid agreement, no department alone has the expertise to deal with the variety of threats we could face.

This paper will address the problem of the training requirements associated with this new terrorist threat. Specifically, with the spectrum of possible types of attacks including

conventional, chemical, biological, and nuclear, what additional training do our firefighters need to meet this challenge and how can we best provide this training?

The purpose of this research project is to develop a training curriculum that will meet the needs of the fire service in San Mateo County in preparing for a terrorist attack. This list of recommended training will be included as an appendix to a new section of the *San Mateo County Emergency Plan* addressing the terrorist threat. The training recommendations will take the form of a matrix indicating the courses, the level of personnel for which they are intended, the hours of training required, and whether refresher training is necessary.

In order to develop this training plan, an action research method is employed to answer the following questions:

1. What are the most likely types of terrorist attacks that may take place?
2. What training is currently in place to meet an anticipated terrorist attack?
3. What additional special training should be provided to firefighters?
4. What training is necessary at the regional level?

BACKGROUND AND SIGNIFICANCE

The events of September 11, 2001, will not be soon forgotten by the fire service. On that day we lost over 340 of our own and no longer could we ignore terrorism as a viable threat to our communities. The anthrax incidents that followed the attacks on New York and Washington D.C. further proved that terrorists could strike in many ways and in many areas.

Prior to September 11, training for a terrorist incident had not received high priority from the fire agencies in San Mateo County. However, the county has many facilities that could be considered prime terrorist targets. The San Francisco International Airport is located here, as are

the water supply and treatment facilities for the City and County of San Francisco. Two major highway corridors span the county, as well as both passenger and freight railway lines. In addition to Redwood City, the county seat, there are 19 other cities located in the county, each with a variety of political and commercial facilities that could be targets.

In some ways, the 18 fire agencies are reasonably prepared to deal with some possible terrorist scenarios. We have a countywide automatic aid system which eliminates jurisdictional boundaries for emergency response. This system is facilitated by a single dispatch center, operated by the county's Public Safety Communications Department. This dispatch center coordinates the movement of 55 engine companies, 12 truck companies, and 15 battalion chiefs as if the county were one fire department.

All but four of the engine companies in the county are staffed with at least one paramedic firefighter. The four that are not ALS are volunteer engine companies in the rural areas served by the County Fire Department. The 55 advanced life support engine companies are supported by ambulances operated by American Medical Response. The number of ambulances varies, but normally at least eight are in service at any given time.

The county has a single hazardous materials response team staffed by the South County Fire Authority. The team is a countywide resource, funded by all fire agencies through a joint powers agreement. Personnel from the county's Environmental Health Department and the Office of Emergency Services augment the four-person fire department staff of the team. Additional hazmat teams are available through mutual aid from the adjoining counties.

Another major resource available to fire agencies in the county is a FEMA urban search and rescue (USAR) team headquartered at the Menlo Park Fire Protection District. This team is staffed through the efforts of most of the fire departments in San Mateo County. As with all

FEMA USAR teams, California Task Force 3 is a tremendous resource with specialized equipment and members with training and expertise in the fields of technical rescue and structural collapse.

Finally, the county fire agencies are fairly progressive in the area of training. A jointly operated fire academy and an active training officers association has assured that all firefighters have been trained to the operational level in hazardous materials and to the awareness level in confined space rescue. Additionally, all recruits leave the basic fire academy with certification in *Rescue Systems 1*, a state level technical rescue course.

Prior to September 11, an attempt had been made to provide training aimed at the terrorist threat. An awareness level course had been developed by the county's Office of Emergency Services in the late 1990s. This four-hour course dealt with recent terrorist events and gave an overview of nuclear, chemical, and biological weapons. Unfortunately, the course was only offered a few times and reached just a small percentage of the fire service personnel in the county. With the regular training demands of fire agencies and the lack of a recent or credible threat, terrorism training was given low priority by almost all local departments.

However, since September 11 all fire and law enforcement agencies have been reacting to the emergency and this training is now in demand. Most fire departments have had at least one "anthrax" call, but more importantly, we all realized how vulnerable we are to any terrorist attack. Working with the fire and police chiefs' associations, the county's Emergency Medical Services Agency sponsored a four-hour workshop on weapons of mass destruction for medical personnel and first responders. The program was offered on several days, both mornings and afternoons, so as many responders as possible could attend. Physicians from the San Mateo

County Health Department presented the program. The focus of the training was on chemical and biological weapons and their effects.

Since that training, there has been no further guidance on what is needed to prepare firefighters and other responders for what might come next. The local fire service needs to know what the plausible threats truly are (Scott, 1997). While some of our existing training appears appropriate for the terrorist type incidents we have witnessed to date, the spectrum of WMD certainly requires additional specialized training (Bruno, 1995). This training needs to be identified as well as the best method of presentation.

The National Fire Academy's *Strategic Management of Change* course teaches the use of a four-phase change management model. The four phases include analysis, planning, implementation, and evaluation. The possibility of responding to a terrorist attack is a new challenge and has definitely changed the nature of the fire service and our training requirements. This research will begin the four phases of change management, as both the threat and the most effective way of providing the necessary training are analyzed. This will involve input from the fire training officers in the county who are key stakeholders in the project. Additionally, a recommended training curriculum will be planned. The implementation of this training and the method of evaluation will only be recommended as part of this project. However, it is understood that these are important elements in the process if implementation of the new training curriculum is to be successful.

The product of this research will also support two of the five-year operational objectives of the United States Fire Administration. One of these objectives calls for fire agencies "to appropriately respond in a timely manner to emergent issues," (USFA, 2000). The terrorism threat is definitely an emergent issue. A second USFA objective is supported by working

towards “a comprehensive multi-hazard risk reduction plan led by or including the local fire service” (USFA, 2000). In this case, that plan will address terrorism as a hazard for San Mateo County. It is hoped that the product of this research will represent an important contribution by the fire service in reducing this risk.

LITERATURE REVIEW

The purpose of this review is to provide background information for the development of a solution to the research problem. This problem involves four areas: What are the most likely types of terrorist attacks that may take place? What training is currently in place by firefighters locally to meet an anticipated attack? What additional training should be provided to firefighters to meet the current threats? What training is needed at the regional level?

What are the most likely types of terrorist attacks that may take place?

Much has been written regarding the threat of terrorist attacks since the Oklahoma City bombing in 1995 and the first World Trade Center bombing in 1993. Articles written in the interim of those attacks and September 11, 2001, now seem prophetic. In an article for *Fire Chief Magazine* in 1998, Gary Briese states that we must try to understand the terrorist mindset in order to prepare for their attacks. Briese believes that terrorists will target civilians and their actions will be designed to receive the maximum publicity. They also hope to produce effects beyond the immediate physical damage (Briese, 1998).

Many fire chiefs might not think that an attack is likely in their community, especially if there are no prominent targets likely to attract the publicity terrorists desire. Robert Laford’s article, “Prepare to be a Terrorist Target” (1998), states that even though the probability is low, all emergency personnel with the responsibility for protecting their communities should be prepared. He goes on to say that these preparations are really no different than preparing for

other emergencies except that they involve the deliberate intention of causing violence. He continues by noting the response principles remain the same: life safety, incident stabilization, and property conservation, stressing the need to protect our people (emergency responders) first. (Laford, 1998).

A similar message is found in a 1997 article for the magazine *Firehouse* in which Hal Bruno states,

> Apparently some are having trouble believing that terrorist might strike in their city, despite the evidence that they will attack anywhere they can find a vulnerable or symbolic target. Their aim is to send a message by causing massive damage and killing a lot of people-including the fire rescue personnel who respond. (p. 10).

Understanding that your community may be a target is one consideration. However, the type of weapon that might be used is still another. The September 11 terrorists used jetliners loaded with up to 10,000 gallons of jet fuel. (Calabresi, 2002). While a devastating and unexpected weapon, these were not the "weapons of mass destruction" that firefighters have been hearing about for the last ten years. According to Briese, the weapons of choice will most likely be the low-tech weapons such as guns and bombs. These are easier to make and acquire and are more reliable. But Briese also discusses the possibilities of other types of attacks including chemical and biological because of their ability to have a huge impact. (Briese, 1998).

Congressman Curt Weldon warns that chemical and biological weapons may soon become the weapons that are used against us. He cites the relative ease in production and low cost, referring to them as "the poor man's nuclear bomb" (Weldon, 1998). Pam and Denis Bramblette further discuss this in an article for *Responder* magazine. The extent of damage, the

number of casualties, and the possibility of national panic certainly make these a significant threat to even small cities and communities. (Bramblette, 1998).

However, there are significant differences between the various weapons of mass destruction (WMD), normally considered to be those weapons utilizing chemical, biological or nuclear agents. The agents are different, the response will be different, and the training for them will also have to be different. For instance, responding to a biological attack may have little immediate impact on fire and law enforcement. This type of attack is likely to manifest itself in the form of overcrowded emergency rooms and will be a public health emergency, rather than one to which fire and police respond. (Osterholm, 2000).

A chemical attack, though, would require a massive fire department response. The chemical attack in the Tokyo subway in 1995 killed 12 people and injured over 5000 others. Many of the victims were emergency personnel. And this weapon used a very crude dispersal device. (Scott, 1997). It should also be noted that the Tokyo Fire Department has more than 18,000 firefighters who have experienced many large disasters, although mostly natural disasters, but they were not equipped or prepared to deal with nerve gas. (Downey, 1996).

Most experts consider a nuclear bomb to be the least likely weapon due to the high security that surrounds these devices. However, there is growing concern about terrorists constructing “dirty bombs” and even obtaining “suitcase nukes.” Congressman Curt Weldon issued a warning to this effect in late 2001. (Werner, 2002). The material needed for making the “dirty bomb” is readily available, (Borisova, 2001), and the threat of an actual nuclear weapon being smuggled into New York City in October, 2001, was enough to put many secret government agencies on alert, including the top-secret Nuclear Emergency Search Team. (Calabresi, 2002).

A final concern cited by the authors of many of the articles researched involved the potential of a secondary weapon specifically intended for the emergency responders. FDNY's Ray Downey was involved in warning firefighters across the nation after a secondary device exploded at an abortion clinic in Atlanta, Georgia next to the fire department's command post. (Dittmar, 1998). This should be of concern to emergency responders on any suspected terrorist incident.

What training is currently in place to meet an anticipated terrorist attack?

The availability of literature concerning local fire service training programs was very limited. However, a statement by Hal Bruno in his article, "Being Fully Prepared for Terrorist Attacks," confirms what many of us believe: a terrorist attack will produce many of the same emergencies for which we are already training. These include fire, explosion, hazardous chemical release, train wreck or other disasters. (Bruno, 1997).

Both the State of California and the Federal government have mandated training requirements for emergency responders. Many of these training mandates are directly applicable for response to a variety of types of terrorist attack. These mandates include training first responders in hazardous materials response to the operations level (24 hours) and chief officers to the hazmat incident commander level (24 hours). Additional requirements for all responders include training in respiratory protection, personal protective equipment, and confined space rescue. All emergency personnel in California are required to be trained in the Incident Command System. The level of ICS training is dependent upon an individual's position in the emergency response or management organization. All fire personnel in California are expected to comply with these training requirements. (Schoonover, 2001).

Some specialized terrorism training has also been offered in San Mateo County. In an interview with Mr. Tom Maruyama, Deputy Director of the San Mateo County Office of Emergency Services, he explained that his office had offered a six-hour *Weapons of Mass Destruction Awareness* class on several occasions throughout the county in the late 1990s. Unfortunately, most police and fire departments did not require their personnel to attend. He stated that there have been numerous requests for the class since September 11 and that they would soon offer a train-the-trainer class.

During my interview with Barbara Pletz, the San Mateo County Emergency Medical Services Director, she highlighted another training program that was initiated shortly after September 11. Six classes, each four-hours in length, were presented by the county medical director and the county public health physician. The class stressed the medical aspects of chemical and biological warfare agents. The classes were designed primarily for medical personnel including field paramedics, but all emergency responders were invited to attend. In fact, ambulances and engine companies throughout the county were rotated into the auditorium for the training. For many personnel this was their first orientation to terrorism and weapons of mass destruction.

Additional training on WMD has been offered to the county's hazardous materials response team. According to William Lent, Hazardous Materials Program Manager for San Mateo County, the team received an assortment of new detection and monitoring equipment through a Department of Justice grant in 1999 and received extensive training in the new equipment's use.

My conversations with San Mateo County officials, Maruyama, Pletz and Lent, confirmed that we have responded appropriately to the events of September 2001. But while we

have offered classes in reaction to recent events, we have not as yet institutionalized these training topics by including them into our annual training programs. According to Mary Jan Dittmar's article, "Terrorism: The Latest Responder Challenge," this could be due to there being no currently mandated training levels. Either new mandates will be required of responders, or existing required courses, such as hazardous materials response training, must include information on the "unique nuances" applicable to terrorist related incidents. (Dittmar, 1998).

What additional specialized training should be provided to firefighters?

In his 1998 article for *Fire Chief*, "Terrorism and the Fire Service: Overview, Observations and Trends," Gary Breise listed six basic training requirements. These included: terrorism awareness training for all first responders, incident command training for all command officers, technical training for hazmat teams on weapons of mass destruction, training on decontamination procedures for mass casualties, enhanced training for existing hazmat teams rather than starting new ones, and training existing USAR teams to operate in chemical and biological contaminated environments. (Briese, 1998).

Awareness training appears to be a universal recommendation for all responders. The six-hour class offered by the San Mateo County Office of Emergency services would be a good model to be taught to all firefighters, possibly at their recruit academy. An alternative method of delivery could be using the National Fire Academy's self-study course. The course material is easy to understand and the self-study work can be completed in less than eight hours. (Dittmar, 1998). This could also be an effective means of presentation for the fire agencies which utilize volunteer firefighters.

Operational level training should also be a requirement for all firefighters. (Dittmar, 1998). For more specific and exotic threats, specialized training is necessary. Where the

incident requires a hazardous materials response, some basic level of expertise exists. However, much more training remains to be undertaken on the unique nature of NBC terrorist incidents. (Bramblette, 1998). One way suggested to reach the operational level involves incorporating WMD training modules into existing hazmat courses. Some of this is currently being undertaken as *NFPA Standards 471, 472, and 473* are being revised. These standards cover competencies for hazardous materials responders and EMS personnel. This would be an expedient and cost-effective way to get the training going. It would also institutionalize the material into our training programs. (Dittmar, 1998).

However, while explosive, chemical and nuclear/radiological training can be incorporated into hazardous material response training, specific training on biological warfare appears to be best provided outside of the hazardous materials arena. The management and coordination of a biological attack, especially with a communicable agent, is entirely different than responding to a chemical or bomb attack. (Osterholm, 2000).

Some fire service professionals such as Leigh Hollins, answering a Round Table question for *Fire Engineering* following the September 11 attack, do not believe we need to go this far. He suggests that the location and type of community protected should dictate the level of training received. For many small town or rural fire departments, a strong generalized training program should suffice. However, for larger cities with known targets he suggests being prepared for mass-casualty incidents and decontamination. (Hollins, 2002).

In the same article for *Fire Engineering*, Steve Kreis of the Phoenix Fire Department emphasizes the need for additional incident management training. He cites the possible magnitude and complexity of a terrorist-related incident. If the command organization gets behind the “power curve” it may not be possible to recover. Additionally, the incident

commander needs to be ready for the onslaught of other agencies, including those from the state and federal government. (Kreis, 2002).

What training is necessary at the regional level?

In this context, the term "regional" refers to countywide or a multi county area. Since San Mateo County is comprised of 18 small fire agencies, any incident that goes beyond a single alarm usually involves assistance from another fire agency. In his article, "Prepare to be a Terrorist Target," (Laford, 1998), Robert Laford notes the importance of agencies working together. He states,

> By planning as a multi-agency force we can operate a safer more effective operation. Working together ahead of time, each agency will have an understanding of the needs and the resources of the other agency. Instead of a situation governed by egos, it will be more effective to have a situation governed by cooperation and understanding. (p. 32).

Even those departments that are capable of the initial response will need relief after the first operational period. An example is a heavy rescue incident, such as Oklahoma City or the World Trade Center. While waiting for a FEMA Urban Search and Rescue Team the local departments will need to work together and integrate easily into one another's management system. (Kreis, 2002). This would suggest the need for multi agency training classes and drills.

Some cities, such as New York, have included a variety of city departments in their WMD and terrorism training. These departments include the police, EMS, environmental protection, and of course, the Office of Emergency Services. (Downey, 1996). Others professionals, such as Laford, stress the need for inter-agency cooperation and training at the management level. He suggests tabletop exercises, EOC exercises, and life-like drills involving hospitals and the mutual aid system. (Laford, 1998).

Literature Review Summary

The review of recent literature on the subject of terrorism, WMD, and training has provided significant insight in reaching answers to the research questions. The sources included magazine articles on the subject written both before and after the September 11 attacks. While most of the authors felt conventional explosives were the most likely weapon to be used by terrorists for a variety of reasons, none discounted the need to be prepared for chemical, biological, or even nuclear/radiological weapons. Training was stressed for all.

The sources generally agree that much of the training regularly performed by fire departments goes a long way towards meeting the training needs related to terrorism. Hazardous materials, EMS, and incident command training were cited as important elements in our existing training programs. However, there was also a strong belief by authors, such as Downey and Briese, that more specific training is needed. This included awareness training for all personnel and specific modules for hazmat and EMS training to emphasize the issues specific to terrorism and WMD.

Finally, Downey (1996) and Laford (1998) stress the need for multi-agency training. This training should be conducted on a regional level and would involve mutual aid companies as well as various agencies and departments other than fire. Their articles explain the need for training at all levels including tabletop, functional field exercises, and EOC drills.

PROCEDURES

Research Methodology

This project employed an action research methodology. The desired outcome of the research was to establish the fire department training requirements to meet the threat of terrorist

attacks. These training needs would be listed in a matrix as part of the County of San Mateo's *Emergency Plan.* The county is in the process of adding a new section to the emergency plan, referred to as the "Terrorism Annex". The training matrix will be an attachment to that annex and appears in this research project as Appendix D.

The training matrix will include specialized courses or course modules related to specific terrorist-type incidents. It will also indicate at which level of an organization the training should be directed. Finally, the matrix will indicate how often the various training courses should be given or refreshed. It was anticipated that multi-agency drills given on a regional scale periodically would act as an evaluation of the effectiveness of the overall training in meeting the threat.

A review of existing documents and periodicals was undertaken to determine the potential types of attacks terrorists might utilize. Sources were also reviewed to establish what current training is given to firefighters and emergency responders that is relevant to the anticipated threats. Additional review provided insight into what specialized training should be included in a training program and the best methods of delivery of the identified training curriculum. Finally, the literature reviewed helped identify the need for multi-agency, multi-discipline training on a regional scale.

The research for this project was conducted in two areas. The first area consisted of interviews of key individuals within the county and a standard set of questions were asked of each individual. The persons interviewed included Mr. Tom Maruyama, Deputy Director of Emergency Services for San Mateo County. The interview with Mr. Maruyama was conducted in his office on March 15, 2002. Lieutenant John Quinlan of the San Mateo County Sheriff's Office and a member of the Bay Area Terrorism Task Force was interviewed on April 15, 2002.

The county's director of the Emergency Medical Services Agency, Ms. Barbara Pletz, and the Hazardous Materials Program manager William Lent, of the San Mateo County Environmental Health Department, were interviewed on May 2, 2002. Also interviewed for this project was EMS Instructor Michael Jacobs, a member of the San Francisco Paramedics Association, a teaching consortium, who developed the WMD training program presented to numerous fire agencies in the Bay Area. Mr. Jacobs was interviewed on April 29, 2002. The questions asked and the paraphrased answers are listed in Appendix A of this report.

The second research tool used was a questionnaire distributed to 14 fire department training officers representing fire agencies in the counties of San Mateo and Santa Clara. The questionnaire sought to establish the level of terrorism/WMD training currently being provided in the two counties, as well as the willingness of the training officers to add specialized terrorism-related training to their fire academies and routine training programs. The questionnaire was distributed to a joint meeting of the San Mateo County and Santa Clara County Training Officers' Associations on May 9, 2002. A summary of this questionnaire is also included as Appendix B of this report and a copy of the original questionnaire is included as Appendix C.

Assumptions and Limitations

An assumption was made that the authors referenced in the literature review were either experts in their field or had performed objective and unbiased research in preparing their articles and documents. It is further assumed that the persons interviewed were knowledgeable in their fields and gave factual information based on the most recent unclassified information available to them. Finally, an assumption was made that the training officers answering the questionnaires

not only gave factual answers to the questions asked, but also have the authority to modify their agencies' training program to include terrorism training.

There were several major limitations to this research work. One was the diverse nature of the terrorist threat. Significant emphasis is being given to chemical, biological, and nuclear/radiological weapons. However, with the exception of the relatively few anthrax incidents, most terrorist-related incidents have involved less exotic weapons. It is therefore difficult to determine the emphasis that should be placed on the training for these types weapons. Another limitation was finding experts in the field of terrorism and their potential weapons. The individuals I chose to interview had direct involvement in planning for a terrorist incident and several had confidential information available to them. However, their expertise was limited to training and planning for a terrorist event.

Finally, there has been a declining concern regarding the possibility of terrorist incidents, especially involving weapons of mass destruction, among emergency response personnel as time has passed since September 11. This may be a west coast phenomenon, but it did limit the research conducted. However, this declining interest also emphasized the need to include terrorism training into fire department training curriculums to keep our personnel knowledgeable regarding the threat and current in the necessary skills.

Definition of Terms

ALS. Advanced Life Support. A level of emergency medical care provided by paramedics.

CBR. Chemical, biological, or radiological weapons.

C.S.T.I. California Specialized Training Institute. A training facility operated by the Governor's Office of Emergency Services in the State of California that provides disaster related training courses.

Dirty Bomb. Also referred to as a "radiological dispersal device" or RRD, it is a weapon which uses a conventional explosive to spread radioactive materials and causes widespread contamination.

Gross Decontamination. A term given to decontaminating a large number of people at the same time, often employing multiple showers or fire hoses to wash contaminants from their bodies.

I.C.S. Incident Command System. A system of emergency management, the use of which is applicable to all types of emergencies. It was originally developed by fire agencies in California in the 1970s for managing multi-agency wildfires but has since been adapted for use for all types of emergencies.

NBC. The term used to describe nuclear, biological or chemical warfare or weapons.

Regional. Used in the context of this research paper, the term refers to a geographical area encompassing numerous jurisdictions and agencies, as large as a county or multiple county area.

WMD. Weapons of mass destruction. The weapons most frequently considered to be in this category are chemical, biological and nuclear/radiological weapons or devices.

RESULTS

A draft of the Terrorism/WMD Master Training Matrix for Fire and EMS is included as Appendix D.

Answers to research questions:

1. What are the most likely types of terrorist attacks that might take place?

The research and literature review indicated that besides accepting the fact that any community may be a terrorist target, the mindset of the terrorist group is an important consideration. If their aim is to cause massive damage and kill many people, any number of weapons may be used. Although the high-tech, exotic weapons of mass destruction will obviously accomplish this, most of the sources researched believed low-tech or locally available hazardous materials posed the greatest threat. Gary Briese (1998) and Hal Bruno (1997) both indicate that the low-tech weapons are easier to make and more reliable.

Mr. William Lent, Hazardous Materials Program Specialist for San Mateo County is most concerned about locally available hazardous materials. He notes the availability of chlorine and phosgene gas as an easy weapon for a terrorist to obtain and use. Radioactive materials are also locally available and can be used in a dispersion device. Both Thomas Maruyama, Deputy Director of Emergency Services for San Mateo County, and Lieutenant John Quinlan of the San Mateo County Sheriff's Office agreed with this assessment. Other low-tech concerns expressed in interviews with Lent and Jacobs, included the use of pesticides or even fuel trucks as weapons.

Most of the literature reviewed, as well as all five interviewees indicated that we should be prepared for the exotic weapons. EMS Director Barbara Pletz was specifically concerned with biological weapons. She believes an anthrax incident to be the most probable of a bio-weapon attack in the Bay Area, but also had great apprehension of a possible communicable weapon being used, such as smallpox.

The use of nerve agents and nuclear bombs was not dismissed by the interviewees, but in agreement with in most of the literature reviewed, it was felt these would be the least probable weapons due to their limited availability and complexity.

2. What training is currently in place to meet an anticipated terrorist attack?

From the research, it appears that most of the training classes necessary to respond to the anticipated terrorist threats have been developed. Several terrorism/WMD awareness courses are already being used. These include the self-study course offered by the National Fire Academy and a course developed in San Mateo County by the Office of Emergency Services (Maruyama, 2002). The latter course has been offered to emergency responders in San Mateo County on numerous occasions since September 11th. A survey of fire agencies in San Mateo and Santa Clara Counties indicated that all agencies are currently providing this training to their personnel (Appendix B).

Much of the training fire agencies are conducting on a regular basis is also applicable to terrorist attack response. This is especially so for the "low-tech" weapons that will primarily cause explosions, fires, and possibly a hazardous material release. Hazardous materials training at the Operational Level and Incident Commander Level are already required in California (Schoonover, 2001). The survey conducted also indicates that many of the fire departments have already addressed the nuclear, biological, and chemical threat in their hazardous materials training. Hazardous materials courses specifically addressing terrorist/WMD incidents have also been developed. According to Thomas Maruyama, the California Specialized Training Institute offers an operational class and incident commander class for these types of incidents.

Additionally, many departments have included Rescue System I as part of their regular firefighter training. In the survey conducted, all responding agencies were participating to some

degree in this training. Seven of the 14 responding agencies had trained over 50% of their firefighters in these advanced rescue skills (Appendix B).

The medical community has also developed training to address the biological weapons threat. According to Director Pletz, the San Mateo County Emergency Medical Services Agency has developed a chemical/biological weapons awareness course that was offered following the September 11 attacks. This course addressed the needs of medical personnel and first responders, focusing on the medical consequences of these weapons. The four-hour course was presented six times. In my interview with EMS Instructor, Michael Jacobs, of the San Francisco Paramedic Association, he advised of a similar eight-hour course which he has developed and presented to a number of Bay Area fire agencies. This course is designed as an in-service EMS training program.

3. What additional specialized training should be provided to firefighters?

The result of the Terrorist Incident Training Questionnaire (Appendix B) indicates much initial training has taken place. Most of the training officers surveyed also were agreeable to the idea of including terrorism/WMD training modules into existing training such as their EMS and hazmat classes. During my interviews with Michael Jacobs and William Lent, both agreed that inclusion of terrorist/WMD information into existing training programs was preferable to developing new classes. Mr. Lent stressed the need to vary the material to keep it interesting, but that gross decontamination was a skill that all firefighters needed to know and should practice annually. Likewise, Mr. Jacobs believed that training for a multi-casualty incident was a skill that directly related to the terrorist situation, but also had day-to-day implications for other types of disasters and should be practiced each year.

The questionnaire also showed several areas where additional training was needed. One such area of need was incident command training related to terrorist/WMD attacks. The arrival of the many state and federal officials in their various capacities to such an incident will require the local agencies to have a firm understanding of jurisdictions and authority. The command organization needs to be prepared. (Kreis, 2002).

According to Mr. Thomas Maruyama of the San Mateo County Office of Emergency Services, local incident commanders need training on both the state and federal response plans. Again, this training is available through the California Specialized Training Institute and can be delivered as regional training. He mentioned that they also provided train-the-trainer classes so local instructors could provide the training.

Another area where additional training is needed involves crime scene operations and awareness of secondary devices. Emergency responders may be targets themselves and should be alert to this possibility. (Dittmar, 1998). Of the 14 fire agencies surveyed, less than half had provided this training to their personnel. Three of the six agencies that had provided information on secondary devices had done so only as part of their terrorism awareness training. In my interviews with Lieutenant John Quinlan and Deputy Director Tom Maruyama, both considered this training very important and recommended that crime scene operations and secondary device training be taught as a separate class.

4. What training is necessary at the regional level?

Any serious terrorist-related incident will require a multi-agency response. It's important that agencies train together to have an effective operation. (Laford, 1998). During my interviews with Hazardous Materials Program Manager William Lent and EMS instructor, Mike Jacobs, both stressed the importance of multi-agency drills and training. Lent pointed out that the San

Mateo County Hazardous Material Team is a joint powers operation. They respond to any jurisdiction that requests the team and must be able to work with that jurisdiction's personnel. Therefore, it is important that agencies train together.

Jacobs commented on the need for many resources in response to a chemical or nerve agent attack in a crowded area. Besides hazmat personnel, he felt such an attack could involve most of the engine companies in the county. Jacobs strongly suggested multi-agency training for multi-casualty incidents. He felt this training would have everyday applications, but would also prepare fire departments for terrorist incidents.

The other suggested regional training involved large-scale exercises and tabletop or EOC exercises with a terrorism incident as the focus. Regional training should be multi-disciplined, involving law, fire, EMS, public works, etc. (Laford, 1998). All of the parties that I interviewed as part of the research also felt that regional training exercise was important. Several of them, Pletz, Lent, and Maruyama, were involved in planning a full-scale exercise for 2003.

DISCUSSION

The training matrix for the "Terrorism Annex" of the *San Mateo County Emergency Plan*, developed as a result of this research, should assist fire and EMS agencies in providing terrorism/WMD training to their personnel. The recommended training is directly related to the possible threat scenarios as discovered during the literature review and again during the interviews with knowledgeable public officials. The research indicated that conventional and low-tech weapons would be the most probable type used by terrorists.

The matrix includes response training to “low tech” weapons, such as explosives and common hazardous materials. Training to address these threats include continuing the required hazardous materials training, as well as technical rescue training such as Rescue Systems I and II and specialized training in structural collapse.

A deliberate effort was made in the development of the matrix to not limit the training to just NBC type attacks. This follows the advise of Chief Garry Briese in his article “Terrorism and the Fire Service: Overview, Observations and Trends” (Briese, 1998) in which he states,

> The current U.S. effort is focused almost completely on the response to NBC terrorism, yet the fire service needs to understand that we must still address the more “common” terrorist bombings, arson, and shootings. Both of the major terrorist bombs in this country were made from normal agricultural fertilizer, ammonium nitrate, mixed with diesel fuel, and just look at the devastation they caused! (p. 36).

However, although the probability is low of an NBC type terrorist attack, first responders must still be prepared for these types of incidents. The recommended training includes initial training in NBC as both a hazardous materials and as a medical problem. Additionally, modules that address these specific types of incidents are included in the continuing training firefighters will carry out in hazardous materials and EMS throughout the year. While the probability of terrorists using these weapons is low, the consequence of even one attack could be devastating. This is why we must train on this disturbing subject matter. Ray Downey was a firm believer. In his article, “Terrorism and the Fire Service: Preparing for Today’s Threats (Downey, 1996) he writes,

> It’s apparent that the need to increase fire service training for these types of incidents (NBC, CBR, WMD) must be a priority for every department in the country. All

> department members from the chief down to the first responder should be included. This training should begin at the awareness level and graduate to the responder and operational levels, where specially trained personnel use the nine-step process of Isolation, Notification, Identification, Protection, Spill, Leak, Fire Control, Recovery, and Termination. (p. 109).

The training matrix addresses NBC from both a hazardous materials problem and a medical problem. The research shows a significant difference between a chemical attack and a biological weapon attack. The chemical attack is immediate and requires rapid response and decontamination processes. A biological attack may not involve a typical fire agency response, but instead would be a public health emergency. This is not to say that fire and EMS would not be involved, but perhaps in a non-traditional role. In his book, *Living Terrors*, (Osterholm, 2000) Michael Osterholm notes the differences between bioterrorism and other forms of attack.

> The difference in responding to bioterrorism, as opposed to a chemical or nuclear attack, is like the difference between flying a plane and driving a Formula One car. Both are moving vehicles, but very different skills are required for each one. The overuse of the term "weapons of mass destruction" has done a great deal to stunt the necessary attention to the looming threat of biological terrorism. As we have seen, in contrast to other forms of WMD, bioterrorism response is not primarily a fire or law enforcement effort. It's a public health and medical system effort. (p. 189).

Both the literature review and interviews identified the need for training in the areas of crime scene operations and, most importantly, the awareness that responders themselves may be targets of terrorists. In response to comments by San Mateo County Sheriff's Lieutenant John Quinlan and OES Deputy Director Tom Maruyama, a course on this subject was added to the

training matrix and, according to Quinlan, would be available from the members of the San Mateo County Sheriff's Bomb Squad. The need for this awareness is collaborated by Chief Steve Kreis, writing for *Fire Engineering*.

> Departments must train for these new types of emergencies in many ways. For example, first responders must be more aware of their surroundings, communications centers must be alert to different types of calls and clusters of incidents, hazardous materials and special operations units must continue to be alert for new threats, fire officers need to consider secondary explosive devices and exposure to biological or chemical agents. (Kreis, 2002). (p. 40).

An evaluation of the training matrix will occur with the regional exercises. The exercises envisioned include multi-company, multi-agency drills on an annual basis. An example of such exercises are the annual drills that many San Mateo County fire agencies conduct each spring with neighboring fire departments to prepare for the wildland fire season. A fire scenario is presented and chief officers establish control strategies and companies employ the necessary tactics. Such drills usually last three to four hours including a critique by those involved.

Performance of drills such as these with a terrorism-related incident would provide information on the actual preparedness of personnel and the effectiveness of the training being provided. Such drills could be used to evaluate the training matrix and to recommended changes in the courses or course content. Robert Laford discusses this method of evaluation in an article, "Prepare to be a Terrorist Target". (Laford, 1998). In the article he discusses the use of drills.

> This practice scenario will help spell out problem areas in the plan that need to be further developed after the drill is complete. Drills offer the opportunity for multi-agencies to

> practice working as a cooperative team and to see how other participants play out their roles within the plan. Practice drills can range from simple tabletop exercises through large life-like drills involving receiving hospitals and the local mutual aid system. (p. 32).

An effort was made in the development of the training matrix to keep the number of new courses to a minimum, although it was understood that the new threats posed by terrorism and possible WMD deployment would require some specialized training. Wherever possible, it was also recommended that terrorism/WMD subject matter be added to existing courses in both initial training and ongoing/refresher training. The survey completed by the training officers of fire agencies in both San Mateo and San Mateo Counties indicated a strong willingness to add the necessary training, both initial and ongoing, to their departments' training curriculum.

RECOMMENDATIONS

The draft fire service training matrix, Appendix D of this report, should be included in the Terrorism Annex of the *San Mateo County Emergency Plan* as recommended training for fire agencies in response to terrorist/WMD related incidents. The recommended training includes information appropriate for response to the effects of conventional explosions or hazardous materials incidents as well as basic training on chemical, biological, and nuclear/radiological weapons effects.

As part of the recommended training, all responders are to receive awareness training on terrorist incidents and weapons of mass destruction. This training, which can take between four and eight hours, is currently being offered by several agencies and can be taught at individual departments or as part of the county's recruit academy. This training is also available in a self-

study course through the National Fire Academy. Additionally, all response personnel should receive a training class covering crime scene operations and secondary device awareness.

Where possible it is recommended that training for terrorist attacks be provided by supporting existing relevant training courses, such as *Rescue Systems I and II.* These courses teach advanced rescue skills and are usually taught regionally. Departments should sponsor these courses when possible and personnel should be encouraged to attend.

While all indications suggest the use of chemical, biological, and nuclear/radiological weapons by terrorists is unlikely, the possibility still exists and it is recommended that training be given to fire department personnel nonetheless. This training would include initial courses to bring personnel to the operational level for weapons of mass destruction in hazardous materials. Similar training should be provided for EMS personnel, but with emphasis on the medical issues associated with these weapons.

Once the initial training has been received, additional training should be given annually to keep the responders' skills current. This refresher training should take the form of training modules included in the routine fire department training schedules. In the case of EMS training, these modules could be included in the "seldom used skills" training required by the county EMS agency. Additionally, annual training on mass casualty incidents and gross decontamination is recommended.

Training is also recommended at the management level. Incident command training related to terrorism/WMD incidents should be provided to all fire officers. Such a course is available through the California Specialized Training Institute (CSTI) and is offered regionally. CSTI also provides a train-the-trainer class for this course as well as their *Hazardous Materials Operations, WMD* course.

It is further recommended that multi-company and multi-agency drills occur each year to assess the responders' knowledge and skills in terrorist related incidents. These drills will also test the incident commander management skills. It is recommended that further evaluation of the emergency response system be accomplished through tabletop and E.O.C. exercises.

Prior to inclusion in the county's emergency plan, the training matrix, Appendix D, should be reviewed by the San Mateo County Training Officers' Association for any necessary additions and modifications. The training officers will be responsible determining the most appropriate method of course presentation and any required course development, such as the refresher modules for hazmat and EMS training. When fully developed, the training program should be presented to the San Mateo County Fire Chiefs' Association for adoption as a county policy.

REFERENCES

Bramblette, D. and Bramblette P. (1998, March). In as suitcase war who responds? *Responder*, 10-13.

Briese, G.L., (1998, November). Terrorism and the fire service: Overview, observations and trends. *Fire Chief*, 54-59.

Bruno, H. (1997, January). Fire Politics: Being fully prepared for terrorist attacks. *Firehouse*, 14.

Calabresi, M. & Rathesar, R. (2002, March 11). Can we stop the next attack? *Time*, 24-27.

Carman, J. (2002, February). Life during wartime: Anthrax, the fire service role. *The California Fire Service*, 14-15.

Coleman, J., Hollins, L., Kreis, S, et all (2002, January). Roundtable: Training after September 11.

Fire Engineering, 35-42.

Dittmar, M.J. (1998, March). Terrorism: The latest responder challenge. *Fire Engineering*, 66-95.

Downey, R. (1996, August). Terrorism and the fire service: Preparing for today's threats. *Fire Engineering*, 109-111.

Kluger, J. (2001, December 17). The nuke pipeline. *Time*, 40-45.

Lanford, Robert (1998, February). Prepare to be a terrorist target. *Responder*, 4-32.

Osterholm, M. T. & Schwartz, J. (2000). Living terrors. New York, NY: Dell Publishing.

Scott, D. (1997 May/June). Facing our worst nightmare. *NFPA Journal*, 52-59.

Schoonover, D., Dowdle, M. & Hunt, J. (2001). *Training mandate study*. San Jose, CA: San Jose Fire Department.

Weldon, C. (1998, March). First responders unprepared for chem-bio incidents. *Responder*, 4.

Werner, C. (2002, February). Technology, terrorism and politics. *Firehouse*, 24-26.

United States Fire Administration. (2000). National Fire Academy. *2002 Catalog of activities.* Washington D.C. Author.

APPENDIX A

INTERVIEW QUESTIONS AND ANSWERS

Interview Participants:

Mr. Thomas Maruyama, Deputy Director of the San Mateo County Office of Emergency Services.

Ms. Barbara Pletz, Director, San Mateo County Emergency Medical Services Agency.

Lieutenant John Quinlan, San Mateo County Sheriff's Office.

Mr. William Lent, Hazardous Materials Program Specialist, San Mateo County Environmental Health Department.

Mr. Michael Jacobs, EMT-P, Instructor, San Francisco Paramedics' Association.

Interview Questions and Responses

1. What do you consider the most likely terrorist weapon that would be used against this area of the country?

2. How are we, the emergency services in San Mateo County, doing in preparing for a terrorist-related attack?

3. What are our strong points to date in regards to training?

4. What additional specialized training do emergency responders, firefighters in particular, need in order to deal with the threat?

5. What training should we undertake on a countywide or regional basis in preparing for a possible attack?

Maruyama Interview

Deputy Director Maruyama considered a conventional bombing or a shooting to be the most probable type of terrorist attack to take place in the Bay Area. Another probable event would be an intentional release of a common hazardous gas or chemical. He considered the use

of more exotic chemicals and/or biological weapons less likely due to the abundance of the more common dangerous gases and chemicals. He noted specifically the possible use of chorine gas as a terrorist weapon. He was also concerned about the ease of which radiological materials could be acquired. Mr. Maruyama listed a significant number of targets in the county that caused concern in his office.

Maruyama felt emergency responders' were strong in regards to terrorism awareness training. Nearly all fire personnel had received this training following September 11^{t}. He also praised the countywide automatic aid agreement between the fire agencies. This would be very effective in quickly providing fire resources anywhere they were needed. He hoped the law enforcement agencies would soon follow suit. He also gave the county hazmat team high marks.

In regards to the need for additional training, Director Maruyama thought we should prepare our command officers for working with the many agencies that would respond to a terrorist emergency. He noted that the California Specialized Training Institute (C.S.T.I.) offered a course called, *Incident Commander, WMD,* and with enough interest, it could be taught in San Mateo County. Train-the-trainer courses were also available. He also saw the need for a large multi-agency terrorist-related exercise and an EOC exercise.

Pletz Interview

Director Pletz admitted that her primary concern as director of the Emergency Medical Services Agency was the threat of chemical and biological weapons. However, she felt that chemical, incendiary, and radiological weapons are initially a hazmat threat. Even chemical and nerve agents are less of a medical issue until the victims are decontaminated. Biological agents, she stressed, are significantly different. "You won't see a typical fire or EMS response to most biological incidents," she stated. Of these, she felt anthrax was the most probable and smallpox

was the worst-case scenario. She was especially concerned about the reports of huge smallpox stockpiles in the former Soviet Union and the Russian government's inability to account for all of it.

Director Pletz credited the county's emergency responders in coming a long way since the attacks in September. She noted the multiple terrorism/WMD awareness classes that have been given and the EMS training that was given six different times to accommodate as many responders as possible. Many firefighters, paramedics, and medical personnel had received training on the medical effects of chemical and biological weapons and how to self-administer the nerve agent antidote. She was also pleased with the progress we were making on the terrorism annex to the county Emergency Plan and the fact that her office was working with the hospitals to establish a county pharmaceutical stockpile.

Ms. Pletz wanted to see annual training for all first responders and hospital staff in the medical effects of chemical and biological weapons. After the initial training, there should be annual training included in the "lesser used skills" section of the county-required continuing education for paramedics and EMTs. She thought that this module could act as "surge training" for all responders in a crisis situation. Director Pletz felt that surge training would include teaching responders to give inoculations in the event of a major communicable disease outbreak, such as smallpox. She imagined the need for a tremendous number of participants and that training in crowd control for inoculation centers might be important, as well.

Finally, she mentioned that she is working with other county agencies and the Bechtel Corporation in the development of a countywide terrorism exercise to be held sometime in early 2003. The planning group also hopes to start off with a tabletop exercise in late 2002. She was concerned with the fire departments' commitment to the exercise stating that initially five fire

training officers were participating in the planning but that has dropped to only two. She definitely felt that a large-scale exercise was needed every year or two to test the EMS system's response to a terrorist incident. She admitted that the health department and the EMS agency's exercise needs might be different than those of fire or law enforcement.

Quinlan Interview

Lieutenant Quinlan advised that he was an active member of the Bay Area Terrorism Working Group (BATWIG) and they had been meeting on a weekly basis. This group includes representation from the FBI and the Department of Justice, so he believed the group was getting up to date information. As far as the current threat, Quinlan thought the most probable event in San Mateo County would be a conventional bombing, such as a suicide bomber. He also felt we needed to be prepared for a school shooting situation and that was equally a type of terrorism for which we should be ready.

In regards to threats from more exotic weapons, he felt that we were in a prime location to be a target for biological warfare. He noted biological weapons tests that took place off the coast in the 1950s that spread a weak flu strain over San Francisco. The test proved to be effective and with our normal wind pattern, a biological agent could be released off of any boat or ship and would quickly spread inland. He also thought that responders in San Mateo County needed to be ready for "just about anything" because we would be responding mutual aid to any major attack in the Bay Area. Also, with only one hazmat team in the county, he believed a chemical-type attack would quickly overwhelm any communities' resources.

Quinlan thought fire agencies were doing a good job in preparing for a terrorist incident. He cited the terrorism/WMD classes that he had helped teach and how well we had adapted to the many "anthrax" incidents to which we had recently been dispatched. He noted the need for

firefighters to be better trained in crime scene recognition, evidence preservation, and secondary device awareness. He advised that the Sheriff's Office and bomb squad could provide this training. Other training for which he saw a need included Shelter Management and Public Information Officer training. Quinlan felt that these classes should be given regionally to make them available for all responders.

Lent Interview

Mr. William Lent is the program manager for San Mateo County's Environmental Health Hazardous Materials Division. He is also the technical adviser to the fire service's hazmat team in San Mateo County. Mr. Lent was most concerned about the possible use of common hazardous materials as a terrorist weapon. "We don't need military weapons," he stated. "We have enough bad stuff right here locally". He specifically referred to the availability of chlorine and phosgene gases in the industrial sections of the county and the amount of pesticides in the rural coastal area. He also noted the availability of radioactive materials within certain industries in the county.

Mr. Lent was pleased with the preparations being made in the county for a terrorist incident, but definitely felt there was much more to be done. Fire and EMS have taken the threat seriously and have supported the awareness training. However, he was not as pleased with the response from law enforcement. He was concerned that there was a plan in place to buy Level B protective equipment for the police agencies, but there has been little support for training them in the proper use of the equipment. He was afraid that they would have a false sense of security with the equipment in the trucks of their cars.

Lent had some concerns about the level of training of the hazmat team. He stated that they had just received extensive monitoring training with a variety of new and sophisticated

equipment procured through a Department of Justice grant. However, while they could recognize various classes of agents and even identify some, he felt they their are mainly firefighters and do not have an extensive chemical background.

He also had concerns regarding the number of hazmat personnel available. "Our personnel would be used up quickly," he stated, citing just four hazmat specialists on duty to staff the hazmat team. Additionally, we would expect about four more personnel coming in on a "call back". The next available teams would be coming from outside the county. He noted that there were five teams available in the adjacent counties.

Lent was pleased with the training and experience of the fire service in incident command. He foresees this as being very important since any chemical type emergency will most likely involve chaos and confusion. "Having the ICS to fall back on will be a great help." He did not believe that local law enforcement was as proficient in its use. "You've got to have the system in place," said Lent. "Besides the confusion of the incident, imagine what will happen when the state and feds show up. We'll lose total control if we're not organized."

Since all firefighters had the Hazardous Materials First Responder-Operations course, Lent thought that the additional training for first responders could be included as a module in their annual refresher training. He did note that all fire departments needed to train in setting up a gross decontamination system. "There won't be time for the nice decon shower trailers to show up from San Jose when people are flopping around all over the place," he said. Lent stated that he was training with the hazmat personnel on a quarterly basis, but felt annual training for first responders was sufficient. He offered to help the fire training officers develop modules for the training, stating there needed to be a new twist each time to keep it interesting. He suggested

training on a chemical agent incident one year with a gross decon exercise. Another year it could be radiological, using whatever civil defense monitors are still around, and so on.

Lent noted that he was also working with county staff on the countywide terrorism exercise. He was adamant that the drill should involve an acute chemical incident to test entry, rescue, and decontamination. He could see a rift in the planning team due to the EMS agency's insistence that it be a biological incident. Lent considered a chemical incident exercise more testing of the full spectrum of responders and a better evaluation of our level of preparedness.

Jacobs Interview

Mike Jacobs advised that he had developed a terrorism/WMD awareness program for medical first responders with the assistance of Mr. Paul Maniscalco, a good friend, and formerly on the advisory committee to the State Department and FEMA on domestic preparedness. Mr. Jacobs has presented his course to the San Jose Fire Department, Mountain View Fire Department, Milpitas Fire Department, Half Moon Bay Fire District, and to the San Francisco Paramedic Association.

Jacobs stated that responders need to understand the mind set of the terrorist to determine the threat. According to Jacobs, different terrorist groups will have different agendas, but they all pretty much want to instill fear, drain resources, and get the maximum amount of publicity possible. When asked about the probable threats, he admitted that most of what is taught in WMD awareness courses is within the realm of possibility. However, he felt the probability of a given type of attack was related to the availability of materials that could be used as weapons. He noted pesticides, nuclear materials from local research and industries, and even gasoline fuel trucks as potential weapons.

Mr. Jacobs was very satisfied with the training fire and EMS agencies were undertaking in response to the terrorism threat. He mentioned that his associates in other parts of the country were extremely impressed with the progress in California.

Jacobs felt that all response personnel needed a good awareness course as a foundation to the terrorism/WMD problem. Besides an overview of possible weapons and their effects, he wanted to see time spent on the nature of terrorism and a profile of some of the known groups. With a good overview, Jacobs thought additional training could be included in the regular mandated training classes, such as Hazardous Materials-Operations Level and EMS training.

However, Jacobs believes we need to emphasize certain areas in the courses we are already teaching until the current crisis is over. During hazmat training, we should concentrate on decontamination, monitoring, and identification of hazardous materials. EMS training should stress multiple casualty incidents, limiting personal exposure, and the medical consequences of chemical, biological, and nuclear agents. We should also be supporting more U.S.A.R. training including Rescue Systems I and II.

Jacobs is impressed with the fire agencies' use of ICS and is including it in his training of EMS personnel. He wants to see more scene safety training for responders, as well as a program for critical stress debriefing after any terrorist type incident. Jacobs also noted that there was a need for a large-scale exercise involving a terrorist-related incident that would involve more than one county in order to be it realistic. Such an exercise, he stated, had not taken place in the Bay Area for over ten years.